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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,618	07/18/2005	Megumu Nagasawa	2005_1140A	7292

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EXAMINER	
CREPEAU, JONATHAN	
ART UNIT	PAPER NUMBER
1795	

MAIL DATE	DELIVERY MODE
11/24/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/542,618	NAGASAWA ET AL.	
	Examiner	Art Unit	
	Jonathan Crepeau	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/18/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 10-334922. The reference is directed to fuel cell comprising electrodes and a proton exchange electrolyte membrane. In Example 1, it is disclosed that each of cathode and the anode comprises a porous carbon substrate, a platinum catalyst and perfluorosulfonic acid resin (corresponding to the claimed "proton-conductive ion exchange electrolytic polymer"). The electrodes further comprise sulfuric acid, which is a mineral acid (see [0021] of the machine translation). Although the reference does not expressly teach that CO is supplied to the fuel cell along with the hydrogen as recited in claim 1, this limitation represents the material worked upon in an apparatus and is given little patentable weight (MPEP 2115).

Thus, the instant claims are anticipated.

3. Claims 1, 2, 4, 5, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 01/43215. Abe et al (U.S. Pre-Grant Publication No. 2003/0113611) is taken as an English

equivalent of WO '215 herein. Abe et al. '611 teach a fuel cell comprising electrodes and a proton exchange electrolyte membrane. In [0031] and [0032], the reference discloses that the electrodes each comprise an electroconductive porous substrate, an inorganic catalyst, polyaniline doped with a polymer sulfonic acid (proton acid), and a proton exchangeable resin. The inorganic catalyst can be platinum (see [0065]). The disclosure of polyaniline doped with sulfonic acid polymer is considered to anticipate claims 4, 5, and 7 as follows: regarding claims 4 and 5, the sulfonic acid groups correspond to the claimed "sulfonate" groups; regarding claim 7, the polyaniline doped with sulfonic acid polymer is considered to be a "salt" and the polyaniline has a basic group (amine group) in the structure thereof. Regarding claim 1, CO may be supplied to the anode with hydrogen (see [0007]).

Thus, the instant claims are anticipated.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/43215.

The reference is applied for the reasons stated above. However, Abe et al. do not teach that the polymeric acid (dopant) has an ion exchange capacity of 1.6 mg/eq or more, as recited in claim 8.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use a sulfonic acid polymer with a high proton conductivity in the electrodes of Abe et al. It has been held that the discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980). In this case, the use of a polymer having a high ion-exchange capacity would have more active proton sites available for the electrode oxidation-reduction reactions, as discussed in [0014] of Abe et al.

6. Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO '215 in view of Fuglevand et al (U.S. Patent 6,218,035).

WO '215 (Abe et al.) is applied for the reasons stated above. However, the reference does not expressly teach that the proton acid polymer is crosslinked, as recited in claim 6.

In column 10, line 11, Fuglevand et al. teach a fuel cell comprising a crosslinked copolymer comprising sulfonic acid groups in the anode and cathode electrodes.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because a particular known technique (crosslinking

ionically conductive polymers in electrodes) was recognized as part of the ordinary capabilities of one skilled in the art. Furthermore, crosslinking provides predictable results including increased strength. As such, it would have been obvious to crosslink the proton acid polymer of Abe et al.

With regard to claim 9, this subject matter would be rendered obvious for the reasons set forth above.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (571) 272-1292. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jonathan Crepeau/
Primary Examiner, Art Unit 1795
November 21, 2008